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| 10/787,243 | 02/27/2004 | Timothy Giles Beard | L9289.04114 | 1264 |
| 24257 | 7590 | 01/04/2005 | EXAMINER | |
| STEVENS DAVIS MILLER & MOSHER, LLP | | | MEW, KEVIN D | |
| 1615 L STREET, NW | | | ART UNIT | |
| SUITE 850 | | | PAPER NUMBER | |
| WASHINGTON, DC 20036 | | | 2664 | |

DATE MAILED: 01/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|----------------------------------|--|
| Office Action Summary | Application No. 10/787,243 | Applicant(s) BEARD ET AL. | |
| | Examiner Kevin Mew | Art Unit 2664 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-72 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27-72 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>2, 5 and 7</u> . | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Drawings

1. The drawings are objected to because of the lack of descriptive legends in Figures 1-6, 8-9 of the drawings. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 27-28, 30-32, 34, 51, 53-55, 57 are objected to because of the following informalities:

replace the term "a" with "an" before the term "USF" in
claim 27, line 3, claim 28, line 1, claim 30, line 2, claim 31, line 2, claim 32, line 2,
claim 34, line 1, claim 51, line 2, claim 53, line 3, claim 54, line 3, claim 55, line 3,
claim 57, line 2. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 35, 49, 58, 72 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "approximately" in claims 35 and 58 is a relative term which renders the claim indefinite. The term "approximately" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention.

Claims 49, 72 recite the limitation "the number of multislot class" in line 2 of each claim. There is insufficient antecedent basis for this limitation in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 27-32, 34, 50-55, 57 are rejected under 35 U.S.C. 102(b) as being anticipated by the admitted prior art, Chillariga et al. (US Publication 2001/0030956).

Regarding claims 27, 50, Chillariga discloses a base station apparatus to perform a multiple access communication method in which a base station transmits an uplink status flag (USF) on a downlink slot, wherein when shifted USF operation is not used (USF for identifying uplink information is transmitted in one downlink block B0, see paragraph 0067, lines 5-8 and middle diagram, Fig. 3; note that no shifted USF operation is used), then an USF which instructs a mobile station to perform uplink transmission on a first uplink slot is transmitted on a first downlink slot (the USF information for the first uplink block B1 in frame MF_x is transmitted in the no-shading portion of the first downlink block B0 in frame MF_x, see entire paragraphs 0028 and 0092), and when the shifted USF operation is used (block B0 with USF information is logically shifted, see paragraph 0092, lines 1-4 and Fig. 7), then the USF which instructs the mobile station to perform uplink transmission on the first uplink slot is transmitted on a second downlink slot (the USF information for uplink block B1 is transmitted in the no-shading portion of a second downlink block B0 block in frame MF_{x+1}, see entire paragraph 0092 and Fig. 7).

Regarding claim 28, 51, Chillariga discloses the method according to claim 27, wherein an USF which instructs the mobile station to perform uplink transmission on a second uplink slot is transmitted on the second downlink slot (the no-shading portion of the downlink block B0 in frame MFx+1 which carries USF information for a second uplink block B1 in frame MFx+1, see entire paragraph 0092 and Fig. 7).

Regarding claims 29, 52, Chillariga discloses the method according to claim 28, wherein a value of the USF which instructs the mobile station to perform uplink transmission on the first uplink slot is different from a value of the USF which instructs the mobile station to perform uplink transmission on the second uplink slot (each of reserved bursts 0, 14, 28, 42 carries USF information for its own uplink burst group, see entire paragraphs 0079 and 0080 and Fig. 5).

Regarding claims 30, 53, Chillariga discloses the method according to claim 27, wherein when the shifted USF operation is not used, then an USF which instructs a mobile station to perform uplink transmission on the first uplink slot and all consecutive uplink slots allocated for uplink transmission is transmitted on the first downlink slot (USF for identifying uplink information is transmitted in one downlink block B0 for uplink blocks B1-B11, see paragraph 0067, lines 5-8 and entire paragraph 0068 and middle diagram, Fig. 3; note that no shifted USF operation is used), and when the shifted USF operation is used (block B0 with USF information is logically shifted, see paragraph 0092, lines 1-4 and Fig. 7), then the USF which instructs the mobile station to perform uplink transmission on the first uplink slot and all consecutive uplink slots allocated for uplink transmission is transmitted on the second downlink slot (the

USF information for uplink blocks B1-B11 is transmitted in the no-shading portion of a second downlink block B0 block in frame MFx+1, see entire paragraph 0092 and Fig. 7).

Regarding claims 31, 54, Chillariga discloses the method according to claim 27, wherein when the shifted USF operation is not used, then an USF which instructs the mobile station to perform uplink transmission on an nth (n being an integer) uplink slot (uplink block B1) is transmitted on an nth downlink slot (USF information for a first uplink block B1 is transmitted in a first downlink block B0, see middle diagram, Fig. 3; note that no shifted USF operation is used).

Regarding claims 32, 55, Chillariga discloses the method according to claim 31, wherein when the shifted USF operation is not used, then an USF which instructs the mobile station to perform uplink transmission on the nth uplink slot and all consecutive uplink slots allocated for uplink transmission is transmitted on the nth downlink slot (USF information for a first uplink block B1 and other consecutive uplink blocks B2-B11 is transmitted in a first downlink block B0, see middle diagram, Fig. 3; note that no shifted USF operation is used).

Regarding claims 34, 57, Chillariga discloses the method according to claim 33, wherein if an USF for assigning an nth (n being an integer) uplink slot is transmitted on an nth downlink slot of a present downlink TDMA frame (USF for uplink block B1 is transmitted on downlink block B0, see middle diagram, Fig. 3), the mobile station performs transmission on the nth

uplink slot of a next uplink TDMA frame or consecutive group of uplink TDMA frames (uplink blocks B9, B10, B11 are transmitted in multiframe MF_x, see Fig. 7).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 33, 35-48, 56, 58-71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chillariga in view of Abdesselem et al. (US Publication 2004/0151143 A1).

Regarding claims 33, 56, Chillariga discloses all the aspects of the claimed invention set forth in the rejection of claims 27, 50, respectively, except fails to explicitly show the method according to claim 27, wherein eight consecutive uplink slots form an uplink TDMA frame and eight consecutive downlink slots form a downlink TDMA frame. However, Abdesselem discloses that the number of timeslots in both the uplink and downlink TDMA frames are eight timeslots (see Fig. 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the dynamic channel allocation of Chillariga with the teaching of Abdesselem in using eight timeslots for both the uplink and downlink TDMA frames. The motivation to do so is provide enough timeslots for transmitting and receiving when supporting TDMA in a GPRS system.

Regarding claims 35, 58, Chillariga discloses the method according to claim 33, wherein an offset between the uplink TDMA frame and the downlink TDMA frame is three slots or approximately three slots. However, Abdesselem discloses that there is a timing offset between an uplink TDMA frame and a downlink TDMA frame, which corresponds to a timeslot shift between the uplink and the downlink TDMA frames (see entire paragraphs 0026 and 0027). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the dynamic channel allocation of Chillariga with the teaching of the timing offset shift between the uplink and downlink TDMA frames in Abdesselem such that the offset between the uplink TDMA frame and the downlink TDMA frame is approximately three slots. The motivation to do so is for the mobile station to provide sufficient time to switch between the uplink and downlink modes and to allow the performance of neighboring cell measurements between the downlink and the uplink.

Regarding claims 36, 59, Chillariga discloses all the aspects of the claimed invention set forth in the rejection of claim 27 above, except fails to explicitly disclose the method according to claim 27, wherein the mobile station performs adjacent cell signal level measurement and preparation for reception prior to re-configuration from transmission to reception. However, Abdesselem discloses neighboring cell measurement could be performed on downlink timeslot seven (see paragraph 0024, lines 10-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the dynamic channel allocation of Chillariga with the teaching of performing neighboring cell measurement and preparation for uplink transmission in Abdesselem such that the mobile station performs adjacent

cell signal level measurement and preparation for reception prior to re-configuration from transmission to reception. The motivation to do so is for the mobile station to measure the power of neighboring cells so as to conform to the GPRS/EDGE standard.

Regarding claims 37, 60, Chillariga and Abdesselem disclose all the aspects of the claimed invention set forth in the rejection of claim 36 above. Chillariga does not disclose the time needed for performing adjacent cell signal level measurement and preparation for reception is three slots. However, Abdesselem further discloses two timeslots are used for neighboring channel measurement and one timeslot is used for switching and setup (see entire paragraph 0023). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the dynamic channel allocation of Chillariga with the teaching of using three timeslots in Abdesselem to perform adjacent cell signal level measurement and preparation for reception. The motivation to do so is for the mobile station to measure the power of neighboring cells so as to conform to the GPRS/EDGE standard.

Regarding claims 38, 61, Chillariga and Abdesselem disclose all the aspects of the claimed invention set forth in the rejection of claim 36 above. Chillariga does not explicitly show the method according to claim 36, wherein the time needed for performing adjacent cell signal level measurement and preparation for reception is one slot. However, Abdesselem further discloses one timeslot is used for frequency switching between the downlink, uplink, and neighboring cell measurement operations is completed within a total period of one timeslot (see entire paragraph 0048). Therefore, it would have been obvious to one of ordinary skill in the art

at the time the invention was made to modify the dynamic channel allocation of Chillariga with the teaching of using one timeslot in Abdesselem for performing adjacent cell signal level measurement and preparation for reception. The motivation to do so is to reduce the time needed to accomplish the neighboring cell measurement and uplink setup so that timeslot usage will be increased for downlink transmission.

Regarding claims 39, 62, Chillariga and Abdesselem disclose all the aspects of the claimed invention set forth in the rejection of claim 36 above. Chillariga does not explicitly show disclose the method according to claim 36, wherein the time needed for performing adjacent cell signal level measurement and preparation for reception is one slot and thirty one symbol periods timing advance offset. However, Abdesselem discloses neighboring cell measurement can be accomplished within downlink timeslot seven, and timing advance value of 31 bits is used to allow sufficient time for the mobile station to switch between uplink and downlink frequencies (see paragraph 0024, lines 10-12 and entire paragraphs 0031 and 0032). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the dynamic channel allocation of Chillariga with the teaching in Abdesselem of using one time slot for performing adjacent cell signal level measurement and thirty one symbol periods timing advance offset. The motivation to do so is to reduce the time needed to accomplish the neighboring cell measurement so that timeslot usage will be increased for downlink transmission and to provide sufficient time to switch between uplink and downlink modes so that the resulting switching, setup and neighboring cell measurement are performed within two timeslots.

Regarding claims 40, 63, Chillariga discloses all the aspects of the claimed invention set forth in the rejection of claim 36 above. Chillariga does not explicitly show the method according to claim 27, wherein the mobile station performs adjacent cell signal level measurement and preparation for transmission prior to re-configuration from reception to transmission, and the time needed for performing adjacent cell signal level transmission is one slot. However, Abdesselem further discloses neighboring cell measurement can be accomplished within downlink timeslot seven (see paragraph 0024, lines 10-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the dynamic channel allocation of Chillariga with the teaching in Abdesselem of using one time slot for performing adjacent cell signal level measurement and preparation for transmission prior to re-configuration from reception to transmission. The motivation to do so is to reduce the time needed to accomplish the neighboring cell measurement so that timeslot usage will be increased for downlink transmission and to provide sufficient time to switch between uplink and downlink modes so that the resulting switching, setup and neighboring cell measurement are performed within one timeslot.

Regarding claims 41-44, 64-67, Chillariga and Abdesselem discloses all the aspects of the claimed invention set forth in the rejection of claims 37-40, 60-63, respectively, except fail to explicitly show the shifted USF operation is used if either three slots, five slots, or six slots are allocated for the uplink transmission in the uplink TDMA frame. However, Abdesselem discloses five or six or lesser number of uplink slots can be used equally well when allocating

timeslots to data traffic in a TDMA frame (see entire paragraph 0027). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the dynamic channel allocation of Chillariga with the teaching in Abdesselem of allocating either three, five, or six timeslots for uplink transmission in the uplink TDMA frame. The motivation to do so is does not define a patentable distinct invention over that in the combined method and apparatus of Chillariga and Abdesselem since both the invention as a whole and the combined method and apparatus of Chillariga and Abdesselem are directed to dynamically allocating timeslots required for sending traffic in both the uplink and downlink directions so as to maximize timeslot usage. The degree in which determining the number of timeslots presents no new or unexpected results so long as the timeslot usage is maximized according to the traffic demand. If one has more number of timeslots for the uplink, it will be provide excellent or good service for the uplink, and if one has less number of timeslots for the uplink, it will provide fair service. Therefore, to have the number of timeslots to be three, five, or six that maximizes timeslot usage would have been routine experimentation and optimization in the absence of criticality.

Regarding claims 45-48, 68-71, Chillariga further discloses the method according to claims 41-44, 64-67, respectively, wherein an indication to use the shifted USF operation is automatic (the ability to shift block USF information in B0 is automatic in the packet data channel NEW_PDCH multiframe structure of a GPRS/EGPRS system, see entire paragraph 0092 and Fig. 7).

6. Claims 49, 72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chillariga in view of Abdesselem et al., and in further view of Parantainen et al. (US Publication 2002/0181422 A1).

Regarding claims 49, 72, Chillariga discloses all the aspects of the claimed invention set forth in the rejection of claims 27, 50, respectively, except fails to explicitly show the number of multi-slot class is any one of multi-slot classes 7, 34, 39 and 45. However, Parantainen discloses the number of multislot class that the mobile station takes ranges from 1 to 12 (see entire paragraph 0034). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the dynamic channel allocation of Chillariga with the teaching in Parantainen such that the multislot class number being used is 7. The motivation to do so is to make sure the uplink timeslot(s) immediately before the radio block on an assigned packet data channel PDCH is not allocated according to the multislot class 7 standard.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure with respect to extended dynamic resource allocation in packet data transfer.

US Publication 2003/0095562 A1 to Liu et al.

US Publication 2002/0098860 A1 to Pecen et al.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Mew whose telephone number is 571-272-3141. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to be 'W. Chin', with a long horizontal line extending to the right.